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Elymus (2).—OSTERHOUT proposes from Colorado (*idem* 611–613) new species of Allionia, Aster, Senecio, and Carduus (2), which are respectfully referred to Mr. RYDBERG.—SARGENT adds (Rhodora 7: 192–219. 1905) 24 new species of Crataegus, all from New England.—ROBINSON describes (*idem* 219–222) a new Ranunculus from Gaspé and Labrador.—C. R. B.

Fossil gymnosperms.—Two trunks of Cycadoidea have been found in the Portland beds of Boulogne, to which MM. FLICHE and ZEILLER give the specific name *C. pumila* on account of their small size.[11] Another Cycadoidea is described without attribution of a specific name. An interesting and important discovery is a cone of Sequoia of the *S. gigantea* type, which is named *S. portlandica*. The oldest well authenticated cone of Sequoia previously known is Heer's *S. lusitanica* from the Wealden beds of Portugal, which belongs to the type represented by the living *S. sempervirens*. It thus is demonstrated that Sequoia existed in its two living types as far back as the Jurassic period and must thus be very much more ancient in its first appearance. Other important discoveries are pine-cones representing the two main series of the present day, viz., the sections Strobus and Pinaster. The cone of the Strobus type is very much flattened and does not yield any definite information as to its internal organization, so the authors include it under the provisional fossil genus Pinites, with the specific appellation *P. strobiformis*, which would appear to be too close to our western *Pinus strobiformis* to stand as a permanent name. The other cone is exceedingly well preserved and resembles very closely, as the authors point out, small cones of the living *P. Laricio*. This cone is referred to Pinus as *P. Sauvagei*. These observations are of very special interest because they establish that Pinus too must be a very old genus, since examples of both the hard and soft pine series existed already in the Jurassic.

GOTHAN calls attention to the somewhat unsatisfactory condition of *Xylopalaeontolgie* at the present time and by comprehensive study of fossil and living woods, including many type-specimens of the former, reaches a number of conclusions of greater or less importance.[12] The proposition of FELIX to divide fossil woods presenting tracheary structure resembling that of living Araucarineae, into Cordaioxyla for the palaeozoic woods, which may be supposed to be those of Cordaites, and into Araucarioxyla for mesozoic and later woods, is rejected, since in the author's opinion no distinction can be made histologically between the two. For these woods ENDLICHER'S name *Dadoxylon* is retained. *Cedroxylon* Kraus and *Cupressinoxylon* Goeppert are separated from each other, not on the basis of the presence of resiniferous parenchyma in the latter genus and ts absence in the former, but on the character of the medullary ray-cells, since many Cedroxyla and even Pityoxyla have resinous parenchyma. This distinction has already and previously been clearly made by PENHALLOW. The author also attempts to separate the woods of the Podocarpeæ from those of the Cupressineae in the larger sense, on the basis of the structure of the pits in the ray-cells. The success of this distinction may be judged from the fact that it results in putting Sciadopitys with the Podocarpeae. *Pityoxylon* of Kraus is broken up by this writer into two genera, *Piceoxylon* and *Pinusoxylon*. The latter genus represents the wood of Pinus, and seems somewhat unfortunate, since it is doubtful if the mesozoic pines had the wood structure which is found as characteristic of that genus in Tertiary and modern times. There are also disquisitions on spiral striation in the wood of the gymnosperms and on the value of annual woody rings as diagnostic of geologic formations. The work closes with two tables for the determination respectively of living and fossil gymnospermous woods. There is likewise an index and an alphabetical list of the living woods investigated by the author.—E. C. JEFFREY.

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[11] FLICHE, P., et ZEILLER, R., Note sur un florule portlandienne des environs de Boulogne-sur-Mer. Bull. Soc. Geol. de la France IV. 4: 787–812. 1904.

[12] GOTHAN, W., Zur Anatomie lebender und fossiler Gymnospermenhölzer. Abhandl. k. preuss. geol. Landesanstalt, Neue Folge, Heft 44. 1905.

Injury by smoke.—Frequent controversies and law suits, arising from damage to agricultural crops by the smoke produced by manufacturing establishments in Germany, have made the recognition of this form of injury extremely important. In order to furnish a basis for distinguishing smoke-injury from injuries due to other factors, SORAUER[13] has made a comparative anatomical study of various kinds of injury commonly occurring in the more important grains, oats, wheat, and barley. The paper contains detailed comparative descriptions of changes in the cell walls and cell contents which cannot be severally noted here. The general plan followed in each case is represented by the following heads: The behavior of the normal plant in its gradual, natural dissolution; abnormalities in smoke-free regions; the phenomena in plants injured by chlorin and by hydrochloric acid fumes; experimental tests of the influence of hydrochloric acid fumes; phenomena confused with smoke injuries. In natural death the cells lose a large part of their contents and finally (except the epidermal cells) collapse completely. This process first involves the tip and edges of the leaves. In cases of death resulting from other causes, as drought, the cells do not collapse so completely, since the contents are not fully resorbed. In injuries due to acid fumes from smoke, the contents of the mesophyll cells contract into an irregular greenish lump, while the cell walls partially collapse.

The most striking feature about this form of injury is the collapse of the epidermal cells. The accompanying changes of the cell contents and cell walls in these and in many other forms of injury are minutely described. The recognition of smoke injury in general is based on the fact that the cells, dying rapidly, collapse partially without being emptied of their contents, the epidermal cells showing the same phenomena. The author continually emphasizes the fact, however, that no clearly defined symptoms for the absolute and certain recognition of smoke injury can be given, but that in all cases a comparative study of

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[13] SORAUER, P., Beitrag zur anatomischen Analyse rauchbeschädigter Pflanzen. Landw. Jahrb. **33**:585–664. *pl. 15–18*. 1904.